

27. (Not Amended From Previous Version) A printing method as claimed in claim 26, wherein the ink jet head has electro-thermal converting element applying thermal energy to ink to eject the ink by utilizing the thermal energy.

REMARKS

Claims 13 to 27 are in the application, with Claims 15 and 23 having been amended herein. Claims 13 and 21 are the independent claims. Reconsideration and further examination are respectfully requested.

As an initial matter, Applicants note that the form PTO-1449 which accompanied the Information Disclosure Statement of July 29, 1998, has not yet been returned to Applicants. Accordingly, Applicants respectfully request that the Examiner initial and return the aforementioned form PTO-1449 to indicate that the information cited therein has been considered and made formally of record.

Claims 15 and 23 were rejected under 35 U.S.C. § 112, first paragraph; Claims 13 to 18 and 21 to 25 were rejected under § 102 over U.S. Patent 4,905,096 (Moriya); and Claims 19, 20, 26 and 27 were rejected under § 103 over Moriya in view of U.S. Patent 5,034,806 (Ikeda).

Reconsideration and withdrawal of these rejections are respectfully requested.

With respect to the rejections under § 112, first paragraph, of Claims 15 and 23, Applicants respectfully submit that there is not seen to be a valid basis set forth in the Office Action for this rejection. Applicants have clearly pointed out the specific portions of the specification and accompanying figures which clearly show that the image data is subjected to a first magnifying processing based on a first magnifying rate, and is then subject to a second magnifying processing based on a second magnifying rate. Accordingly, the specification clearly describes that the resultant image data after application of the first and second magnifying processing corresponds to an overall magnifying rate which is the product of the first magnifying rate and the second magnifying rate. To be frank, this is a matter of simple math and is well known in the field of image data processing that subjecting an image to two separate magnification processes results in an overall magnification rate which is the product of the magnification rate of each process.

In addition, Applicants submit that the amendments herein to Claims 15 and 23 further clarify that the overall

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resultant magnifying rate of the image is a magnifying rate corresponding to a product of the first magnifying rate and the second magnifying rate.

In particular, a magnifying rate is read prior to the start of magnifying processing, and vector magnifying is executed according to the designated magnifying rate Specification, page 23, lines 4-12; and page 27 lines 1-18; and Figures 3 and 5. In addition to the vector magnifying, the printer includes a magnifying processing portion for subjecting image data from the image memory, which has already been subjected to the vector magnifying, to magnifying processing. Specification page 30, lines 24-26; and page 31, lines 1-3. A parameter information which includes a magnifying factor is included in an image transmitting command to the printer, and the magnifying rate for the magnifying processing portion is set with reference to the magnifying factor. Specification, page 39, lines 4-8; page 43, lines 4-15, pp. 52-54; and Figures 18 and 19.

In summary, it is clear from the foregoing portions of the specification and figures that the present invention subjects image data to two magnifying processings such that the overall resultant magnifying rate of the image is the product of the two respective magnifying rates of the two

magnifying processings. Accordingly, Applicants submit that the claim language of amended Claims 15 and 23 is abundantly clear such that one skilled in the art of image processing would understand that the inventors had possession of the claimed invention at the time the application was filed. In this regard, one of the goals of the present invention is to achieve magnification processing of an image in a distributed manner between software and hardware such that a magnification processing can be performed in the software and in the hardware to achieve an overall combined magnification of the image without deterioration of quality of the image. Specification, page 8, lines 12-23. Applicants therefore respectfully request that the § 112, first paragraph rejection be reconsidered and withdrawn. ✓

Turning to the prior art rejections, independent Claim 13 is directed to a printing system including an image processing section and a printing section to perform printing on a printing medium based on image data. The system includes a memory for storing the image data, first processing means for executing image data magnifying processing based on first magnifying rate information, and second processing means for executing the image data magnifying processing for an image to be printed based on the

image data magnified by the first processing means, based on second magnifying rate information. The first magnifying rate information is determined based on at least one of a resolution of printing performed by the printing section, a processing load to be borne by the first processing means, a capacity of the memory and a resolution shown by the image data, and a magnifying rate of the image to be printed on the printing medium based on the image data.

As discussed in Applicants' previously-filed Response To Office Action of October 13, 2000, the applied art, namely Moriya and Ikeda, is not seen to disclose or to suggest the foregoing features of independent Claim 13. In particular, the applied art is not seen to disclose or to suggest first processing means for executing image data magnifying processing based on first magnifying rate information, and second processing means for executing the image data magnifying processing for an image to be printed based on the image data magnified by the first processing means, based on second magnifying rate information. The applied art further fails to disclose or suggest that the first magnifying rate information is determined based on at least one of a resolution of printing performed by the printing section, a processing load to be borne by the first

processing means, a capacity of the memory and a resolution shown by the image data, and a magnifying rate of the image to be printed on the printing medium based on the image data.

Moriya is seen to be directed to an image reading arrangement which utilizes an optical magnifying device and an electrical magnifying device so as to achieve a desired reading of an image. Moriya, Abstract and column 2, lines 11-50. In this manner, Moriya is seen to be directed to image processing for an image reader such as a scanner which utilizes an optical magnifying device and an electrical magnifying device to achieve a desired scanned-in resolution. In this regard, Moriya is not seen to be directed to an image printing system, much less an image printing system which does not utilize an optical magnifying device.

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Specifically, the magnifying method of Moriya determines if the image cannot be optically read at the designated magnification, and if it cannot be, the optical magnification is used as much as possible, and the remaining magnification to be performed is supplemented by the electrical magnifying. In the alternative, if the image cannot be optically read at the designated magnification, the optical magnifying is set to an equal size magnification (pass-through), and the electrical imaging is employed for

all of the designated magnification. Moriya, column 6, lines 46-61. Accordingly, Moriya suggests that the first magnifying rate of the optical magnifying is directly determined based upon the designated magnifying rate or whether the image can be optically read at the designated magnification. Nowhere is Moriya seen to disclose or to suggest that the first magnifying rate is determined based on at least one of four different conditions, specifically: a resolution of printing performed by the printing section; a processing load to be borne by the first processing means; a capacity of the memory and a resolution shown by the image data; and a magnifying rate of the image to be printed on the printing medium based on the image data.

Moriya is only seen to be directed to the magnifying process to accompany optical reading for scanning in an image, whereas the present invention is directed to magnification of image data in preparation for printing by a printing device. Accordingly, nowhere is Moriya seen to disclose or to suggest that a first magnifying rate can be based at least on a resolution of printing performed by the printing section or on a processing load to be borne by the first processing means. Neither is Moriya seen to disclose or suggest that the first magnifying rate can be based on the

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magnifying rate of the image to be printed on the printing medium based on the image data.

It is stated in the Office Action that Moriya teaches a printing system, including an image processing section that includes first processing means for executing image data magnifying processing based on first magnifying rate information at Figure 1, and column 6, lines 62-64 of Moriya. Applicants respectfully submit that this assertion is completely erroneous. Figure 1 of Moriya is seen to be directed to a flow chart for describing a variable magnification processing in an image reading arrangement (scanner) according to one preferred embodiment of Moriya. As described by the flow chart of Figure 1 and the accompanying text of Moriya, Figure 1 is for implementation in a scanner. Moriya, Figure 1; column 3, lines 10-13; column 6, lines 62-68; and column 7, lines 1-17.

It is also stated in the Office Action that Moriya discloses second processing means for executing the image data magnifying processing for an image to be printed based on the image data magnified by the first processing means based on second magnifying rate information. Again, the cited portions of Moriya in support of this assertion are not seen to disclose or suggest the printing of image data which

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is already in image data format, but instead refer only to magnification, either optical or electrical, for scanning an image into a computing device at a desired resolution.

Moriya, Figure 2; and column 7, lines 1-20.

It is further asserted in the Office Action that the first magnifying rate information is determined based on at least one of a resolution of printing performed by the printing section, a processing load to be borne by the first processing means, a capacity of the memory and a resolution shown by the image data, and a magnifying rate of the image to be printed on the printing medium based on the image data.

Applicants again submit that the cited sections of Moriya in support of this assertion are not seen to disclose or suggest the determination of a first magnifying rate based on at least a resolution of printing performed by the printing section, much less based on the other three criteria of Claim 13. Moriya, column 4, lines 40-47; and column 6, lines 46-61.

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In addition, Moriya is not seen to disclose or to suggest anything remotely corresponding to determining a first magnifying rate based on at least a processing load to be borne by the first processing means. In this regard, the cited portion of Moriya relied upon in the Office Action

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merely states that CPU 30 is used for controlling reading of the original document, however, Moriya is not seen to disclose or to suggest anywhere that the load of CPU 30 is monitored, much less for the purpose of determining the first magnifying rate. Moriya, column 4, lines 37-47. Instead, Moriya determines whether the optical magnification means can read the image at the designated magnification. Moriya, column 6, lines 46-61. In addition, Moriya is not seen to disclose or to suggest that the first magnifying rate is determined based on a capacity of the memory, but instead is only seen to use memory for the second magnifying processing performed by electrical magnification. Moriya, column 5, lines 15-64.

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In order to anticipate a claim, each and every element must be found, or must be clearly suggested, together in a single reference. MPEP, § 2131. In this regard, Ikeda is cited in the Office Action in support of the § 103 rejection of Claims 19, 20, 26 and 27. In particular, Ikeda is relied upon in the Office Action for allegedly teaching the printing system with magnification processing in which the printing head is an ink jet head ejecting ink onto a printing medium and having an electrothermal converting element. In order to support a § 103 rejection, each and

every element of the claim must be disclosed or suggested in the cited references, and there must be a clear suggestion or motivation disclosed in the references to arrive at such a combination. MPEP § 2143. In this case, as discussed above, Moriya is not seen to disclose or to suggest each and every element of independent Claim 13, and the Office Action has not relied upon Ikeda for disclosure or suggestion of any elements of independent Claim 13. Accordingly, Ikeda is not seen to remedy the deficiencies of Moriya with respect to independent Claim 13 as discussed above.

The Examiner states in the Office Action that Applicants have not provided a detailed explanation of why the reference (Ikeda) fails to teach the features and why Ikeda's teaching cannot be combined with Moriya. Applicants respectfully note that it is the burden of the Patent Office to establish a *prima facie* case of obviousness and, where the cited references do not disclose or suggest each and every element of the rejected claim and where there is not suggestion or motivation pointed out by the Examiner in support of the rejection, a *prima facie* case has not been established. MPEP § 2143.

Accordingly, independent Claim 13 is believed to be in condition for allowance, and such action is respectfully

requested. In addition, independent Claim 21 is a method claim substantially corresponding to independent Claim 13 and is therefore believed to be in condition for allowance for the same reasons discussed above with respect to independent Claim 13.

The other claims in this application are each dependent from the independent claims discussed above and are therefore believed patentable for the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, CA office at (714) 540-8700. All

correspondence should continue to be directed to our below  
listed address.

Respectfully submitted,

  
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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

15. (Amended) A printing system as claimed in claim 14, wherein the magnifying rate of the image to be printed on the printing medium based on the image data is a magnifying rate corresponding to a product of a magnifying rate shown by said first magnifying rate information multiplied by a magnifying rate shown by said second magnifying rate information.

23. (Amended) A printing method as claimed in claim 21, wherein the magnifying rate of the image to be printed on the printing medium based on the image data is a magnifying rate corresponding to a product of a magnifying rate shown by said first magnifying rate information multiplied by a magnifying rate shown by said second magnifying rate information.